UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/988,543	11/20/2001	Ronald J. Vanderhelm	034300-171	8874

7590 09/20/2004

ROBERT E. KREBS
THELEN REID & PRIEST LLP
P.O. Box 640640
SAN JOSE, CA 95164-0640

EXAMINER	
PHAM, TUAN	
ART UNIT	**PAPER NUMBER**
2643	

DATE MAILED: 09/20/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/988,543	VANDERHELM, RONALD J.	
	Examiner	Art Unit	
	TUAN A PHAM	2643	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *20 November 2001*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-32* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-32* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *05/30/2003*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

2. Claims 11-15, and 17-31 are rejected under 35 U.S.C. 102(e) as being anticipated by Chavez et al. (U.S. Patent No.: 6,549,772, hereinafter, "Chavez").

Regarding claim 11, Chavez teaches an add-on enhancer (i.e., remote transceiver) to increase the dynamic range (i.e., frequency band) of a receiver (i.e., IF transceiver) having an antenna port (see figure 5), the enhancer comprising:

a downconverter (i.e., mixer) for downconverter a received signal to an intermediate frequency of the receiver (see figure 5, mixer 204, col.6, ln.1-50); and

an attachable coupling line for sending signals from the downconverter to the receiver (see figure 5, coupling line between filter 212 and IF transceiver 217); wherein the dynamic range (i.e., frequency band) of the enhancer (i.e., IF transceiver) is greater than the dynamic range of the receiver (see col.5, ln.49-67).

Regarding claim 12, Chavez further teaches the add-on enhancer further comprising at least one filter operative to exclude strong signals (see figure 5, filter 206, col.6, ln.13-23).

Regarding claim 13, Chavez further teaches the add-on enhancer wherein the downconverter comprises a mixer and a local oscillator operative to downconvert the received signal to the intermediate frequency of the receiver (see col.6, ln.1-50).

Regarding claim 14, Chavez further teaches the add-on enhancer wherein the local oscillator is synchronized to the receiver (see col.5, ln.25-34).

Regarding claim 15, Chavez further teaches the add-on enhancer further comprising a control signal from the receiver to the local oscillator in order to synchronize the local oscillator to the receiver (see col.5, ln.25-34, col.6, ln.34-50).

Regarding claim 17, Chavez further teaches the add-on enhancer further comprising a diplexer in electrical communication with the downconverter and the coupling line (see figure 11, diplexer 460, 466).

Regarding claim 18, Chavez further teaches the add-on enhancer further comprising an antenna in electrical communication with the downconverter and operative to detect the received signal (see figure 5, antenna 202, mixer 204, col.6, ln.1-50).

Regarding claim 19, Chavez further teaches the add-on enhancer further comprising a duplexer in electrical communication with the antenna and the diplexer, the duplexer (i.e., diplexer) being operative to transmit and receive signals with the antenna (see figure 11, diplexer 460, 466).

Regarding claim 20, Chavez further teaches the add-on enhancer wherein the diplexer and the duplexer are operative to send and receive signals between the antenna of the add-on enhancer and the antenna port of the receiver (see figure 11, col.10, ln.16-55). Chavez fails to explicitly teach the receiver (i.e., IF transceiver) comprises an antenna port. However, Chavez teaches the remote transceiver to connect with IF transceiver by the coupler for coupling the downconverter signal to the input IF transceiver, the input of IF transceiver is included an antenna, therefore, the antenna is inherently including within the IF transceiver).

Regarding claim 21, Chavez teaches a method of increasing the dynamic range (i.e., frequency band) of a receiver (i.e., IF transceiver) having an antenna port with an enhancer (i.e., remote transceiver)(see figure 5), the method comprising the steps of:

a) receiving a signal with an antenna of the enhancer (see figure 5, antenna 202, remote transceiver 112, col.6, ln.1-50);

b) downconverting the signal to an intermediate frequency of the receiver (see figure 5, mixer 204, col.5, ln.1-50); and

c) coupling the downconverted signal to the antenna port of the receiver (see figure 5, coupling line between filter 212 and IF transceiver 217. Chavez fails to explicitly teach the receiver (i.e., IF transceiver) comprises an antenna port. However,

Chavez teaches the remote transceiver to connect with IF transceiver by the coupler for coupling the downconverter signal to the input IF transceiver, the input of IF transceiver is included an antenna, therefore, the antenna is inherently including within the IF transceiver).

Regarding claim 22, Chavez further teaches the method further comprising at least one filter operative to exclude strong signals (see figure 5, filter 206, col.6, ln.13-23).

Regarding claim 23, Chavez further teaches the method comprises mixing the signal in order to downconvert the signal (see col.6, ln.1-50).

Regarding claim 24, Chavez further teaches the method comprises mixing the signal with a local oscillator signal (see col.6, ln.1-50).

Regarding claim 25, Chavez further teaches the method further comprising the step of synchronizing the local oscillator signal with the receiver (see col.5, ln.25-34).

Regarding claim 26, Chavez further teaches the method further comprising the step of synchronizing the local oscillator signal via a control signal from the receiver (see col.5, ln.25-34, col.6, ln.1-50).

Regarding claim 27, Chavez further teaches the method comprises coupling the downconverted signal with a coaxial line in electrical communication with the antenna port of the receiver (see figure 5, IF transceiver 217, cable connect between filter 212 and IF transceiver 217, col.6, ln.1-50).

Regarding claim 28, Chavez teaches an enhancer (i.e., remote transceiver) for increasing the dynamic range (i.e., frequency band) of a receiver (i.e., IF transceiver), the enhancer comprising (see figure 5):

downconversion (i.e., mixer) means for downconverting a signal detected by an antenna of the enhancer (see figure 5, antenna 202, mixer 204, col.6, ln.1-50); and

coupling means for sending the downconverted received signal to the receiver (see figure 5, IF transceiver 217, cable connect between filter 212 and IF transceiver 217, col.6, ln.1-50).

Regarding claim 29, Chavez teaches an enhancer (i.e., remote transceiver) for increasing the dynamic range (e.i.,frequency band) of a receiver (i.e.,IF transceiver) having an antenna port, the enhancer comprising (see figure 5):

an antenna for receiving the a signal (see figure 5, antenna 202);

a mixer in electrical communication with the antenna and a local oscillator signal; the mixer being operative to downconvert the received signal to an intermediate frequency of the receiver (see figure 5, mixer 204, col.6, ln.1-50); and

a coupler in electrical communication with the mixer and the antenna port of the receiver, the coupler being operative to transmit the downconverted received signal to the receiver (see figure 5, coupling line between filter 212 and IF transceiver 217. Chavez fails to explicitly teach the receiver (i.e., IF transceiver) comprises an antenna port. However, Chavez teaches the remote transceiver to connect with IF transceiver by the coupler for coupling the downconverter signal to the input IF transceiver, the

input of IF transceiver is included an antenna, therefore, the antenna is inherently including within the IF transceiver).

Regarding claim 30, Chavez further teaches the enhancer further comprising: a duplexer (i.e.,diplexer) in electrical communication with the antenna and the mixer; and a diplexer in electrical communication with the duplexer, the mixer and the antenna port of the receiver; wherein the duplexer and the diplexer are operative to send a receive signal between the antenna and the antenna port of the receiver (see figure 5, figure 11, col.6, ln.1-50, col.10, ln.15-40).

Regarding claim 31, Chavez further teaches the enhancer further comprising a local oscillator in electrical communication with the mixer, the local oscillator being operative to provide a local oscillator signal to the mixer to be downconverted with the received signal (see col.6, ln.1-50).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-7, 9-10, 16, and 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chavez et al. (U.S. Patent No.: 6,549,772, hereinafter, "Chavez") in view of Peterzell (Pub. No.: U.S. 2002/0123319).

Regarding claim 1, Chavez teaches an enhancer (i.e., transceiver 112)(see figure 5, transceiver 112), the enhancer comprising:

a downconverter (i.e., mixer) for downconverting the received signal (see figure 5, mixer 204, col.6, ln.1-50); and

a coupler for sending the downconverted signal to the receiver (see figure 5, IF transceiver 217, cable connect filter 212 and IF transceiver 217, col.6, ln.1-50).

It should be noticed that Chavez fails to clearly teach downconverter (i.e., mixer) increase the dynamic range of the receiver. However, Peterzell teaches such features (see figure 8, col.6, [0076], col.7, [0083-0085]) for a purpose of converting the input signals.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the use of downconverter (i.e., mixer) increase the dynamic range of the receiver, as taught by Peterzell, into view of Chavez in order to reduce the interference and improve receiving signals in the transmission.

Regarding claim 2, Chavez further teaches the enhancer further including at least one filter operative to exclude strong signals (see figure 5, filter 206, col.6, ln.1-50).

Regarding claim 3, Chavez further teaches the enhancer wherein the downconverter comprises: a local oscillator operative to generate a local oscillator signal; and a mixer operative to mix the received signal with the local oscillator signal in order to downconvert the received signal (see col.6, ln.1-50).

Regarding claim 4, Chavez fails to explicitly teach the receiver (i.e., IF transceiver) comprises an antenna port. However, Chavez teaches the remote transceiver to connect with IF transceiver by the coupler for coupling the downconverter signal to the input IF transceiver, the input of IF transceiver is included an antenna, therefore, the antenna is inherently including within the IF transceiver (see figure 5, col.6, ln.1-50).

Regarding claim 5, Chavez further teaches the enhancer wherein the mixer is operative to downconvert the received signal to the intermediate frequency of the receiver (see col.6, ln.1-50).

Regarding claim 6, Chavez further teaches the enhancer wherein the local oscillator is synchronized to the receiver (see col.5, ln.25-34).

Regarding claim 7, Peterzell further teaches a phase lock loop electrically connected to the local oscillator and the receiver in order to synchronize the local oscillator (see figure 3, phase lock loop 65, col.3, [0028]).

Regarding claim 9, Chavez further teaches the enhancer wherein the coupler is a coaxial line operative to couple the enhancer to the receiver (see figure 5, IF transceiver 217, cable connect between filter 212 and IF transceiver 217, col.6, ln.16-31).

Regarding claim 10, Peterzell teaches an antenna for detecting the received signal, and a duplexer electrically connected to the coupler and the antenna, the duplexer operative to transmit and receive signals to and from the coupler (see figure 3).

Regarding claim 16, Chavez teaches an add-on enhancer (i.e., remote transceiver) to increase the dynamic range (i.e., frequency band) of a receiver (i.e., IF transceiver) having an antenna port (see figure 5), the enhancer comprising:

a downconverter (i.e., mixer) for downconverter a received signal to an intermediate frequency of the receiver (see figure 5, mixer 204, col.6, ln.1-50); and

an attachable coupling line for sending signals from the downconverter to the receiver (see figure 5, coupling line between filter 212 and IF transceiver 217); wherein the dynamic range (i.e., frequency band) of the enhancer is greater than the dynamic range of the receiver (see col.6, ln.1-12).

the downconverter comprises a mixer and a local oscillator operative to downconvert the received signal to the intermediate frequency of the receiver (see col.6, ln.1-50).

the local oscillator is synchronized to the receiver (see col.5, ln.25-34).

a control signal from the receiver to the local oscillator in order to synchronize the local oscillator to the receiver (see col.5, ln.25-34, col.6, ln.1-50).

It should be noticed that Chavez fails to clearly teach a phase lock loop in electrical communication with the local oscillator and the control signal in order to facilitate synchronization. However, Peterzell teaches such features (see figure 3, phase lock loop 65, col.3, [0028]) for a purpose of generating the frequency of oscillator.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the use of a phase lock loop in electrical communication with the local oscillator and the control signal in order to facilitate synchronization, as taught by Peterzell, into view of Chavez in order to reduce the interference and improve receiving signals in the transmission.

Regarding claim 32, Chavez teaches an enhancer (i.e., remote transceiver) for increasing the dynamic range (e.i.,frequency band) of a receiver (i.e.,IF transceiver) having an antenna port, the enhancer comprising (see figure 5):

an antenna for receiving the a signal (see figure 5, antenna 202);

a mixer in electrical communication with the antenna and a local oscillator signal; the mixer being operative to downconvert the received signal to an intermediate frequency of the receiver (see figure 5, mixer 204, col.6, ln.1-50); and

a coupler in electrical communication with the mixer and the antenna port of the receiver, the coupler being operative to transmit the downconverted received signal to the receiver (see figure 5, coupling line between filter 212 and IF transceiver 217. Chavez fails to explicitly teach the receiver (i.e., IF transceiver) comprises an antenna

port. However, Chavez teaches the remote transceiver to connect with IF transceiver by the coupler for coupling the downconverter signal to the input IF transceiver, the input of IF transceiver is included an antenna, therefore, the antenna is inherently including within the IF transceiver).

a duplexer (i.e.,diplexer) in electrical communication with the antenna and the mixer; and a diplexer in electrical communication with the duplexer, the mixer and the antenna port of the receiver; wherein the duplexer and the diplexer are operative to send a receive signal between the antenna and the antenna port of the receiver (see figure 5, figure 11, col.6, ln.1-50, col.10, ln.15-40).

local oscillator in electrical communication with the mixer, the local oscillator being operative to provide a local oscillator signal to the mixer to be downconverted with the received signal (see col.6, ln.1-50).

It should be noticed that Chavez fails to clearly teach a phase lock loop in electrical communication with the local oscillator, the phase lock loop being operative to synchronize the local oscillation signal with the receiver. However, Peterzell teaches such features (see figure 3, phase lock loop 65, col.3, [0028]) for a purpose of generating the frequency of oscillator.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the use of a phase lock loop in electrical communication with the local oscillator, the phase lock loop being operative to synchronize the local oscillation signal with the receiver, as taught by Peterzell, into

view of Chavez in order to reduce the interference and improve receiving signals in the transmission.

4. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Chavez et al. (U.S. Patent No.: 6,549,772, hereinafter, "Chavez") in view of Peterzell (Pub. No.: U.S. 2002/0123319) as applied to claim 1 above, and further in view of Russo (U.S. Patent No.: 6,301,297).

Regarding claim 8, Chavez and Peterzell, in combination, fails to clearly teach a serial buffer electrically connected to the phase lock loop and the receiver in order to synchronize the local oscillator. However, Russo teaches such features (see figure 1, serial buffer 26, phase lock loop 22, oscillator 18, col.3, ln.10-60) for a purpose of sampling and storing the bit streams.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the use of serial buffer electrically connected to the phase lock loop and the receiver in order to synchronize the local oscillator, as taught by Russo, into view of Chavez and Peterzell in order to save the power for a device.

Conclusion

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. In order to expedite the prosecution of this application, the applicants are also requested to consider the following references. Although Recouly (U.S. Patent No. 6,434,401), Booth (Pub. No.: U.S. 2002/0032908) Bontempi (Pub. No.: U.S. 2003/0046713), and Huttunen (Pub. No.: U.S.2002/0016154) are not applied into this Office Action; they are also called to Applicants attention. They may be used in future Office Action(s). These references are also concerned for supporting the system and method for automatically selecting, mapping and designating components for digital cable service distribution systems.

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to **Tuan A. Pham** whose telephone number is (703) 305-4987. The examiner can normally be reached on Monday through Friday, 8:00 AM-5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mr. Curtis Kuntz can be reached on (703) 305-4708 and **IF PAPER HAS BEEN MISSED FROM THIS OFFICIAL ACTION PACKAGE, PLEASE CALL Customer Service at (703) 306-0377 FOR THE SUBSTITUTIONS OR COPIES.**

Any response to this action should be mailed to:

Commissioner of Patents and Trademarks

Washington, D.C. 20231

Or faxed to: (703) 872-9306

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington VA, Sixth Floor (Receptionist, tel. No. 703-305-4700).

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have question on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Art Unit 2643
September 15, 2004
Examiner

Tuan Pham

CURTIS KUNTZ
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600